

XPERIA™ pro



MK16a, MK16i

Purpose of this document

Sony Ericsson product White papers are intended to give an overview of a product and provide details in relevant areas of technology.

Document history

Version		
August 2011	Thirteenth released version	Version 13

Sony Ericsson Developer World

For the latest Sony Ericsson technical documentation and development tools, go to www.sonyericsson.com/developer.

This White paper is published by:

Sony Ericsson Mobile Communications AB,
SE-221 88 Lund, Sweden

www.sonyericsson.com

© Sony Ericsson Mobile Communications AB,
2009-2011. All rights reserved. You are hereby
granted a license to download and/or print a
copy of this document.
Any rights not expressly granted herein are
reserved.

Thirteenth released version (August 2011)
Publication number: 1247-7725

This document is published by Sony Ericsson Mobile Communications AB, without any warranty*. Improvements and changes to this text necessitated by typographical errors, inaccuracies of current information or improvements to programs and/or equipment may be made by Sony Ericsson Mobile Communications AB at any time and without notice. Such changes will, however, be incorporated into new editions of this document. Printed versions are to be regarded as temporary reference copies only.

*All implied warranties, including without limitation the implied warranties of merchantability or fitness for a particular purpose, are excluded. In no event shall Sony Ericsson or its licensors be liable for incidental or consequential damages of any nature, including but not limited to lost profits or commercial loss, arising out of the use of the information in this document.

Table of contents

Product overview	4
Xperia™ pro - Write away. Right away	4
Sony Ericsson signature features	5
Facts – dimensions, weight, performance and networks	6
Categorised feature list	8
Technologies in detail	10
Device-to-device communications (local)	10
Bluetooth™ wireless technology	10
Wi-Fi®	11
DLNA Certified™ (Digital Living Home Alliance)	12
Messaging	13
MMS (Multimedia Messaging Service).....	13
Email	13
Positioning – location based services	14
Provisioning (OMA CP)	14
Multimedia (audio, image and video)	15
Synchronisation (OMA DS, EAS, Google Sync™)	17
Web browser	17
Trademarks and acknowledgements	18

Product overview

Xperia™ pro - Write away. Right away

Messaging should be fast and easy, right? With the perfectly designed and solid keyboard of Xperia™ pro it is. Slide the keyboard out and write away. Use the smart Type & Send function that lets you write all your messages and status updates directly on the Home screen. Just type in your text, then decide what to do with it. Create smiles on Facebook™? Sure. Mail work about more work? Absolutely. Text a friend, C U Sunday? Easy. It's all possible from one place on Xperia™ pro.

And the smart keyboard knows what to do before you know what to write. Slide it out when you're browsing your inbox and "Write new email" automatically pops up. Or slide it out when you're online and the address and search field is activated. Small things that make your mobile life a little easier.

Sony™ and Xperia™. Pure brilliance

Spotlight videos from YouTube™. Romantic snaps from the last holiday. All in super-bright colours in high contrasts on the large, multi-touch Reality display powered by Sony's Mobile BRAVIA® Engine. Your image is sharp, right? So spice up your snaps through the 8.1 megapixel camera and Sony's award winning Exmor R™ for mobile camera sensor. Film everything. Then show it off on your HD TV or via a projector using the built-in HDMI™ connector. It's what you call a show starter.

Let's get down to business

Busy? Synch your email and calendar on the fly with Microsoft® Exchange ActiveSync®. Or use apps for work like Google calendar™ and Google Maps™. Out of office? No problem. View and edit your docs in OfficeSuite Pro. Oh, and don't worry about security. Xperia™ comes with the latest security features.

All the latest action. Through Android™

Find apps to make you smile from Android Market™. Or make you more efficient. Or fitter. Or a better cook. There's more than 100,000 apps to choose from. Everything you need from a phone that does everything you want. Better. Perfectly balanced through the perfect combination of Sony and Android.

** The service is not available in all markets.*



Sony Ericsson signature features

Xperia™ pro comes with a range of Sony Ericsson features as standard. Below is a summary of the key signature features.

Sony Ericsson Timescape™

The place to meet your friends

The Timescape™ application manages all your communication with one person in one place. You can effortlessly browse by category your Facebook™, Twitter™, email and text communications, as well as view your photos. Now everything is all together and in chronological order, so you don't have to open different applications to see what's going on.

Infinite button

Everything you want – from everywhere

Tap the infinite button in the Timescape™ application and smart filter each category of communication by person. For example, when viewing a text message from a friend in Timescape™, tap the infinite button to view a list of all chat messages with that friend.

Sony Ericsson Sync

Your mobile life on the web

Synchronise your phone data using Sony Ericsson Sync so that you always have a backup. While you're at it, match your phone contacts with your Facebook™ contacts. All your synchronised phone data is right at your fingertips and in your account on www.sonyericsson.com.

Sony Ericsson Local connectivity

More control over your media

Using Sony Ericsson Local connectivity, you can exercise more control over how media files get transferred and stored. For example, you can select MTP mode to transfer files if you want to limit the risk of data corruption or select MSC mode if you want to have more control over the data storage.

Sony Ericsson Home screen application

The place you call Home

Customise your Home screen with widgets, shortcuts, folders, themes, wallpaper and other items. Where's best for you? Email top right? Music player bottom left? You decide. With four extensions to your Home screen, you've got plenty of space to put things where you want. Just remember to flick left or right to find them.

** Applications from the Android Market™ vary widely in size, from less than 100 KB for small utilities to 3-4 MB for full games, music player applications, or other major offerings. The average size, if a representative selection of useful and fun applications is selected, is about 1 MB. This means that, on average, more than 100 applications can be downloaded and used on your device without negatively impacting performance. With the ready availability of the Android Market™ application in the phone, it is also very easy to delete and later reinstall infrequently used applications.*

**** Note:** Some of the services mentioned above may not be available in all markets.

Facts – dimensions, weight, performance and networks

Operating system	Google™ Android™ 2.3 (Gingerbread)
Processor	1 GHz Qualcomm Snapdragon MSM8255
Size	120 x 57 x 13.5 mm
Weight	142 grams
Available colours	Black Red Silver (Selected markets)
Main screen	
Colours	16,777,216 colour TFT
Resolution	854x480 pixels
Size (diagonal)	3.7 inches
Scratch resistant	Shatter proof sheet on scratch-resistant glass
Input mechanisms	
QWERTY keyboard	4x11
Text input	On-screen QWERTY keyboard. HW QWERTY keyboard.
Touch screen	Capacitive (multi-touch)
Touch gesture	Yes – multi-touch
Memory	
Internal phone storage	1 GB (up to 320 MB user-accessible memory)
RAM	512 MB
Expansion slot	microSD™, up to 32 GB
Camera	
Camera resolution	8.1 megapixel
Front-facing camera	Yes
Digital zoom	16x
Video zoom	16x
Photo flash	Yes – LED
Video recording	Yes – HD 720p
Sensors	
Accelerometer	Yes
Proximity sensor	Yes



Ambient light sensor	Yes
Networks	
MK16i	UMTS HSPA 900 (Band VIII), 2100 (Band I) GSM GPRS/EDGE 850, 900, 1800, 1900
MK16a	UMTS HSPA 800 (Band VI), 850 (Band V), 1900 (Band II), 2100 (Band I) GSM GPRS/EDGE 850, 900, 1800, 1900
Data transfer speeds	
GSM GPRS	Up to 86 kbps
GSM EDGE	Up to 237 kbps
UMTS HSPA cat 6 (upload)	Up to 5.8 Mbps
UMTS HSPA cat 8 (download)	Up to 7.2 Mbps
Talk time (GSM)	Up to 6 hours 55 min*
Standby time (GSM)	Up to 430 hours*
Talk time (UMTS)	Up to 7 hours*
Standby time (UMTS)	Up to 400 hours*
Music listening time	Up to 31 hours
Video playback time	Up to 7 hours
Battery	1500 mAh

* Values are according to GSM Association Battery Life Measurement Technique.

NOTE: Battery performance may vary depending on network conditions and configurations, and phone usage..

Categorised feature list

 <p>Camera</p> <ul style="list-style-type: none"> 3D sweep panorama 8.1 megapixel camera 16x digital zoom Aperture f/2.65 Auto focus Face detection Flash/LED Front-facing camera (VGA) Geo tagging HD video recording (720p) Image stabiliser Red-eye reduction Scene detection Self-timer Send to web Smile detection Sony Exmor R™ CMOS sensor Sweep panorama Touch capture Touch focus Video light Video recording Video stabiliser 	 <p>Music</p> <ul style="list-style-type: none"> Album art Bluetooth™ stereo (A2DP) Music tones (MP3/AAC) PlayNow™ service** Sony Ericsson Music Player TrackID™ music recognition** xLOUD™ Experience 	 <p>Internet</p> <ul style="list-style-type: none"> Android Market™* Bookmarks Google™ search** Google Voice™ Search** Pan & zoom Web browser (WebKit)
 <p>Communication</p> <ul style="list-style-type: none"> Call list Conference calls Facebook™ application** Facebook inside Xperia™ 2.0 Google Talk™ video chat** Noise Shield Polyphonic ringtones Sony Ericsson Timescape™ Speakerphone Twitter™ (Timescaper™ integration)** Vibrating alert Video chat ready 	 <p>Messaging</p> <ul style="list-style-type: none"> Conversations Email Google Mail™** Instant messaging Multimedia messaging (MMS) Predictive text input Sound recorder Text messaging (SMS) Type & Send widget 	 <p>Design</p> <ul style="list-style-type: none"> Auto rotation Keyboard (on-screen, 12 key) Keyboard (on-screen, QWERTY) Keyboard (QWERTY) Live wallpaper Picture wallpaper Reality Display with Mobile BRAVIA® Engine Screenshot capturing Swipe to write Smart Keyboard Touch screen

 <p>Entertainment</p> <ul style="list-style-type: none"> 3D games Accelerated Adobe Flash Video Media browser Motion gaming Sony Entertainment Networks** Radio (FM radio with RDS) Video streaming YouTube™** 	 <p>Organiser</p> <ul style="list-style-type: none"> Alarm clock Calculator Calendar Document editors Document readers E-Manual Flight mode Google Calendar™** Google Gallery 3D** Infinite button Phonebook Setup guide Widget manager 	 <p>Connectivity</p> <ul style="list-style-type: none"> 3.5 mm audio jack aGPS** Bluetooth™ technology DLNA Certified™ Google Latitude™** Google Maps™ with Street View** HDMI™ support Media Transfer Protocol support Micro USB support Modem Native USB tethering Synchronisation via Facebook™** Synchronisation via Google Sync™** Synchronisation via Sony Ericsson Sync Synchronisation: Microsoft® Microsoft® Exchange ActiveSync® via Moxier client** Synchronisation via Microsoft® Exchange ActiveSync® USB mass storage USB High speed 2.0 support USB OTG Wi-Fi® Wi-Fi® Hotspot functionality
--	--	--

* Applications from the Android Market™ vary widely in size, from less than 100 KB for small utilities to 3-4 MB for full games, music player applications, or other major offerings. The average size, if a representative selection of useful and fun applications is selected, is about 1 MB. This means that, on average, more than 100 applications can be downloaded and used on your device without negatively impacting performance. With the ready availability of the Android Market™ application in the phone, it is also very easy to delete and later reinstall infrequently used applications.

** This service is not available in all markets.

Technologies in detail

NOTE: The information outlined below is general and levels of compliance to standards and specifications may vary between products and markets. For more information, contact Sony Ericsson Developer World or your Sony Ericsson contact person where applicable.

Device-to-device communications (local)

Bluetooth™ wireless technology

Bluetooth™ profiles supported	Advanced Audio Distribution Profile v1.2 Audio/Video Remote Control Profile v.1.0 Handsfree Profile v1.5 Headset Profile v1.1 Object Push Profile v1.1 Phonebook Access Profile v1.0
Core version and supported core features	Advanced Audio 2.1 + EDR
Connectable devices	Products supporting at least one of the profiles above.

More information:

www.sonyericsson.com/developer

www.bluetooth.com

Wi-Fi®

Supported standards	IEEE 802.11b/g/n and Wi-Fi
Connectable devices	Wi-Fi access points
Frequency band	2.4 GHz
Data transfer rate	Up to 72 Mbit/s
Security	WEP 64 bit WEP 128 bit TKIP CCMP (AES) Open Authentication Shared Authentication EAP-TLS EAP-TTLS/MSCHAPv2 PEAPv0/EAP-MSCHAPv2 PEAPv1/EAP-GTC WPA Personal and WPA2 Personal WPA Enterprise and WPA2 Enterprise
Encryption	WEP, TKIP and AES
Power save	WMM-UAPSD QoS, WMM

DLNA Certified™ (Digital Living Home Alliance)

Supported Device Classes	M-DMS – Mobile Digital Media Server Media Types: Images Summary: The digital media server exposes the media files in your phone to a Wi-Fi® network. The files can then be accessed from other DLNA Certified™ clients.
Supported Bearers	Wi-Fi®
DRM Support	The Sony Ericsson DLNA Certified™ implementation does not support DRM-protected content.

Messaging

MMS (Multimedia Messaging Service)

According to OMA Multimedia Messaging Service v1.0 + SMIL

Email

Bearer type (IP)	GPRS, EGPRS, UMTS
Character sets	BIG5 Traditional Chinese GB2312 Simplified Chinese ISO-2022-JP Japanese ISO-8859-1 ISO-8859-2 Eastern Europe ISO-8859-5 Cyrillic ISO-8859-7 Greek ISO-8859-9 Turkish ISO 8859-11 KOI8-R Cyrillic Shift_JIS Japanese USASCII UTF-16 UTF-8 Windows® 874 Windows® 1251 Cyrillic Windows® 1252 Windows® 1254 Turkish Windows® 1258 Vietnamese
Protocols	POP3 and IMAP4
Push email	Microsoft® Exchange ActiveSync® (EAS)
Secure email	SSL/TLS, both port methods (POPS/IMAPS) and START-TLS
HTML mail	Yes (read only)

More information:

www.sonyericsson.com/developer

www.openmobilealliance.org

Positioning – location based services

Supported standards:

OMA Secure User Plane Location (SUPL) v1.0

3GPP™ Control Plane location (incl. Emergency location)

Qualcomm® GPSOneXtra™

Supported satellite systems:

GPS

GLONASS*

** **NOTE:** GPS and GLONASS are used together to calculate the position. With both systems active, the accuracy and robustness of the positioning is better in most conditions. The usage of GLONASS as an additional system is transparent both to users and developers, and the benefits are automatically available to applications currently using the Satellite Positioning API (“GPS Provider” in Android terminology).*

Provisioning (OMA CP)

OMA CP version 1.1

Multimedia (audio, image and video)

Audio Playback	Decoder format	Supported in file format
	Audio decoding MPEG-1/2/2.5, audio layer 3	MP3 (.mp3), 3GPP (.3gp), MP4 (.mp4, .m4a)
	AAC, AAC+, eAAC+	3GPP (.3gp), MP4 (.mp4)
	AMR-NB, AMR-WB	3GPP (.3gp), MP4 (.mp4)
	General MIDI (GM)	SMF (.mid)
	Linear PCM 16bit	WAV (.wav)
	OTA	OTA (.ota)
	Ogg vorbis	Ogg vorbis (.ogg)
Audio Recording	Encoder format	Supported in file format
	AMR-NB, AMR-WB	3GPP (.3gp), MP4 (.mp4), AMR (.amr)
	AMR-NB, AMR-WB, AAC-LC stereo, sample rate 48 kHz bit rate 128 kbps	3GPP (.3gp), MP4 (.mp4)
Image Playback	Decoder format	Supported in file format
	1, 4, 8, 16, 24 and 32 bpp and RLE encoded formats	BMP (.bmp)
	Single and multi-frame, bitmap mask support (GIF87a format and GIF89a format)	GIF (.gif)
	Joint Photographic Experts Group	JPEG (.jpg)
	Portable Network Graphics Bitmap mask support	PNG (.png)
	Wireless Bitmap	WBMP (.wbmp)
Image Capture	Encoder format	Supported in file format
	Joint Photographic Experts Group	JPEG (.jpg)
Video Playback	Decoder format	Supported in file format
	MPEG-4 Visual Simple Profile, Advanced Simple Profile Level 6	3GPP (.3gp), MP4 (.mp4)
	H.264 High Profile Level 3.1	3GPP (.3gp), MP4 (.mp4)
	H.263 Profile 0, Profile 3 Level 70	3GPP (.3gp)

Video Recording	Encoder format	Supported in file format
	Video H.263 Profile 0, H.264 Baseline Profile Audio: AAC-LC stereo, sample rate 48 kHz bit rate 128 kbps, AMR-NB	3GPP (.3gp), MP4 (.mp4)
Audio/Video Streaming	Streaming transport	RTSP according to 3GPP™ HTTP streaming
DRM	DRM (Digital Rights Management) – features the rights and copy protection of downloaded content	OMA DRM 1.0

Synchronisation (OMA DS, EAS, Google Sync™)

OMA Data Synchronisation protocol versions 1.1.2 and 1.2

OMA Data Formats: vCard 2.1, vCalendar 1.0

Microsoft® Exchange ActiveSync® protocol version 2.5

Microsoft® Exchange ActiveSync® protocol version 12

Google Sync™

Related information:

www.sonyericsson.com/developer

Web browser

Browser version	Android 2.3 Browser (Based on WebKit)
Navigation/rendering	Adobe™ Flash™ 10.3* Full page PC rendering Landscape/portrait rendering Pan & Zoom
Search	Internet Search
Browser compliancy	CSS 2.0 CSS 2.1 CSS 3.0 DOM 2.0 DOM 3.0 HTML version 4.0 HTML version 5.0 JavaScript 1.7/ECMA-script 262 3rd edition WebGL 1.0 XHTML Basic version 1.0 XHTML 1.1
Supported Device API	Geo-location API
Protocol compliancy	HTTP/1.1 TLS 1.0 and SSL 3.0 Gzip OMA Download 1.0

* Updates are distributed via Android market™.

Related information:

www.sonyericsson.com/developer

Trademarks and acknowledgements

The Liquid Identity and Liquid Energy logos, PlayNow, TrackID, Xperia and Timescape are trademarks or registered trademarks of Sony Ericsson Mobile Communications AB. Sony, "make.believe", Exmor R, xLOUD and Mobile BRAVIA Engine are trademarks or registered trademarks of Sony Corporation. Ericsson is a trademark of Telefonaktiebolaget LM Ericsson.

The Bluetooth word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by Sony Ericsson is under licence. TrackID is powered by Gracenote Mobile MusicID. Gracenote and Gracenote Mobile MusicID are trademarks or registered trademarks of Gracenote, Inc.

Google, Google Calendar, Google Gallery 3D, Google Latitude, Google Maps, Google Places, Google Talk, Google Search, Google Sync, Google Mail, Picasa, YouTube, Google Voice, Android and Android Market are trademarks or registered trademarks of Google, Inc. Facebook is a trademark or registered trademark of Facebook, Inc. Twitter is a trademark or a registered trademark of Twitter, Inc.

Wi-Fi is a trademark or registered trademark of the Wi-Fi Alliance. DLNA and DLNA Certified are trademarks or registered trademarks of the Digital Living Network Alliance. microSD is a trademark or registered trademark of SanDisk Corporation. XHTML is a registered trademark of the W3C.

Microsoft, Windows, and ActiveSync are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Adobe Flash is a trademark or registered trademark of Adobe Systems Incorporated in the United States and/or other countries. 3GPP™ is a trademark of ETSI.

Qualcomm and GPSONeXTRA are trademarks or registered trademarks of Qualcomm, inc.

All other trademarks and copyrights are the property of their respective owners.

Some features described herein require supporting services. Usage charges may apply for such services.